9100 NASA Roles and Responsibilities

The following definitions describes the roles and responsibilities of key NASA personnel:

Test Director (TD): The WFF TD has authority over all operations conducted on the WFF Test Range. The TD is responsible for assuring that all range policy, criteria, and external agreements are satisfied during the operations. The TD is the only person with authority to resume the countdown after a "HOLD" has been declared.

Project Manager (PM): The designated WFF PM is responsible for the planning, coordinating and directing of operational support for assigned projects conducted at the WFF Test Range. The PM is the author of the Operations and Safety Directive (OSD) which is designed to accomplish Project Objectives while complying with established policy, criteria, and procedures. The PM is responsible for coordinating and directing project activities as necessary during the countdown. The PM will apprise the TD and RSO of project status details and likewise keep the project personnel properly informed of range operational status. The PM also serves as Assistant TD.

Range Operations Assistant (ROA): The ROA aids the TD in closely monitoring countdown operations and range status. The ROA is normally responsible for responding to requests for information and making announcements, such as time counts, issuing clearance for radiation, establishing periods of RF avoidance, establishing roadblocks, and performing station checks.

Range Safety Officer (RSO): The WFF RSO is responsible for assuring the WFF safety policy, criteria, and procedures are not violated during operations, and to assure that risks are understood and are within acceptable limits. The RSO has authority to stop work, or hold a launch if necessary. The RSO will keep the TD and RSM apprised of safety status which could effect launch operations.

Launch Pad Supervisor (LPS): The WFF NSROC LPS is responsible for implementing operational procedures in the launch area in accordance with the project OSD. The LPS or his designated representative must be present and shall monitor all procedures involving hazardous operations. No hazardous procedures will be initiated without the LPS's knowledge and consent.

Operations Safety Supervisor (OSS): The WFF OSS has authority over all hazardous operations performed during preparation and launch activities. The OSS or a designated OSS representative must be present and shall monitor all procedures involving hazardous operations. No hazardous procedures will be initiated without his knowledge and consent.

Mission Manager (MM): The MM is responsible for assuring that programmatic objectives are achieved. The MM has authority, with the Test Director's concurrence, to conduct tests of program systems in accordance with procedures approved by NASA. The MM will keep the PM appraised of program status.

Recovery Director (RD): The RD is responsible for the successful recovery of the payload. The RD will assure that the required assets are in place to begin recovery efforts as soon as it has been cleared by the TD. The RD will keep the PM & MM appraised of the recovery status.

9200 Abbreviations used in countdown under "ACT BY":

CAM5	Camera 5
CAM15	Camera 15
COMP	Computer
FOTO	Photographer
LPS	Launch Pad Supervisor
LC	Launcher Control
MM	Mission Manager
PGMR	Programmer
PI	Principal Investigator
PLC	Payload Control
PM	Project Manager
RC	Radar Controller
RSO	Range Safety Officer
TD	Test Director
TM	Telemetry Engineer
TM Readout	Telemetry Readout Room
TM RCVING	Telemetry Receiving Room
WO	Weather Officer
WW	Wind Weighting

9300 Launch Countdown

NOTE:

All items are to be announced complete on channel 1 of the WFF intercom unless preceded by "N" for no response required. Each item will be performed only after previous items have been checked complete unless directed otherwise by the Test Director or his designee. Refer to page 9000 for the list of operator title abbreviations.

All supporting elements of the operation are expected to keep the RCC advised of their status throughout the countdown. However, after the "T-10 MINUTE STATION CHECK" only personnel reporting countdown items or for elements which affect "GO/NO GO" criteria will report. The elements are designated with an "ASTERISK" in the T-10 minute station check. The countdown (program time) will be stopped remotely by the Test Director (TD), ProjectManager (PM), the Range Safety Officer (RSO), or the programmer on command by the TD, if necessary.

This coutdown officially begins at T-4:30 from the stated opening of the launch window stated in Section 1110 of this OSD. At the opening of the countdown, it is assumed the vehicle and payload are staged on the launcher and the Pad/Blockhouse Voltage/Amp (V/A) checks are complete.

Shaded portions of the program time column of this countdown indicate these times are practice items conducted during the vertical payload checks.

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECKD	CHECKC	OPERATION
04-30-00	1.	WW			Launch corner reflector balloon and track to maximum altitude.
03-00-00	2.	TD			Establish RF avoidance for Pad 2.
	3.	LPS			ARM vehicle and payload.
	4.	LPS			Verify that the following tasks are complete: 1. Vehicle and payload completely assembled on Pad 2 MRL launcher. 2. Umbilicals rigged and connected. 3. Volt/Amp checks completed. 4. Batteries charged. 5. All safety restraints installed. 6. Set Pre-Launch Danger Area road blocks. 7. Initial arming of Orion Motor
	5.	LPS			Remove shelter.
	6.	FOTO			Take horizontal pictures of NRW-4075.
	7.	ROA			Release RF silence.

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
	8.	ROA			All personnel be advised that the following launch will be conducted under NRW-4075 OSD Countdown Procedure Rev 1 dated June 8, 2004. Conduct Station Checks (Acknowledge) CAM 5 – Camera 5 CAM15 – Camera 15 * COMP--Computer FOTO--Photographer LPS--Pad Supervisor LC – Launcher Control PGMR--Programmer * PI--Principal Investigator * PM--Project Manager * RC--Radar Controller * RD--Recovery Director * MM—Mission Manager WW-Wind Weighting * RSO--Range Safety Officer * TD--Test Director NOTE:* Only these individuals can call "HOLD;" All others call "RED" if not in a "GO" state.
	9.	TD, RSO,PM			Test "HOLD" Button
02-30-00	10.	WW			Release and track corner reflector balloon to 50k ft altitude.
02-00-00	11.	COMP			Conduct simulation using nominal trajectory.
	12.	TD			Initial contact with FAA, VACAPES, NORAD, and Recovery Vessel.
	13.	ALL			**BEGIN HOIZONTAL CHECKS**
00-10-00	14.	PGMR			Announce start of local count @ T-10 min.
(Local Count)	15.	PLC			**External power ON.** **1. TM 2. Exp**
	16.	PLC			**Experiment power ON.** **Exp #2 (AK) Exp #3 (IL) Exp #4 (GA)**
	17.	TM			Start tape.
	18.	TM			**TM report good lock.** **System** **Nom** **dB/MHz** **Nom** **dB/MHz** TM Strength - dBm _____ - dBm _____ TM Deviation +/- MHz _____ +/- MHz _____

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
	19.	PLC			**Verify external nominal voltage and current levels.** **System** / **Type** / **No.** / **Nom. Voltage** / **Voltage** TM / A / 24 / 28 Vdc Experiment / D / 12 / 12 Vdc **System** / **Nom. Current** / **Current** TM / 1.6 A Experiment / 2.26 A **System** / **Check** Transponder
	20.	PLC			Interrogate transponder and confirm good lock.
00-05-00	21.	ROA			Announce "This is NRW-4075 SUB-SEM Orion Horizontal Checks. Please stand by for station checks. All stations should announce status as 'Green' or 'Red' on Channel 1." Camera Station 5 ____GO Camera Station 15 ____GO * Test Director: R-6604 ____GO VACAPES ____GO FAA Airspace ____GO USCG NOTMAR ____GO * Computer RTCS or RTBS ____GO * Launch Pad Supervisor ____ GO * Launcher Control _____GO Programmer ____ GO * Principal Investigator ____GO * Mission Manager ____GO * Payload Telemetry ____GO * Payload Control ____GO Photographer Lift off/tracking camera's ___GO * Project Manager ____GO * Radar Controller C-Band radars ____GO * Range Safety Officer: ____ GO Launch Hazard Area ____GO Air/Surface hazard area within limits ___GO Flight Safety Criteria/Requirements Satisfied ____ GO * Telemetry Tracking Antenna's ____GO * Sounding Rocket Office _____GO Wind Weighting ____GO
00-03-20	22.	TM Readout			Start paper recording.
00-03-00	23.	PLC			**Experiment power ON.** **Exp #1 (MN)**
	24.	PLC			**Switch to INTERNAL power.** **1. TM 2. Exp**

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
	25.	TM			**TM report good lock.** **System** — **Nom** — **dB/MHz** — **Nom** — **dB/MHz** TM Strength — - dBm — — - dBm — TM Deviation — +/- MHz — — +/- MHz —
	26.	PLC			**Verify external nominal voltage and current levels.** **System** — **Type** — **No.** — **Nom. Voltage** — **Voltage** TM — A — 24 — 28 Vdc — Experiment — D — 12 — 12 Vdc — **System** — **Nom. Current** — **Current** TM — 1.6 A — Experiment — 2.26 A — **System** — **Check** Transponder —
	27.	PLC			Interrogate transponder and confirm good lock.
	28.	PLC			**Arm CDI and verify nominal parameters.** **System** — **Nom. Voltage** — **Voltage** CDI Battery 1 — 28 Vdc — CDI Battery 2 — 28 Vdc — Capow Pack 1 — 33 Vdc — Capow Pack 2 — 33 Vdc — **System** — **Check** CDI MFT 1 — CDI MFT 2 —
	29.	PLC			**Switch to EXTERNAL power.** **1. Exp 2. TM**
	30.	PLC			**Experiment power OFF.** **Exp #2 (AK) Exp #3 (IL) Exp #4 (GA) Exp #1 (MN)**
	31.	PLC			**External power OFF.** **1. Exp 2. TM**
	32.	TM			Stop recording on all systems.
	33.	ALL			**END HOIZONTAL CHECKS**
01-45-00	34.	'N'			Monitor NASA daily weather briefing.
	35.	TD			Release Surveillance Aircraft for take-off.
	36.	ROA			Establish RF Avoidance on Pad 1.

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
	37.	LPS/NSROC			Commence final Vehicle/Payload systems arming. (Orion Ignition/Payload Separation)
	38.	LPS/NSROC			Remove all safety restraints
	39.	LPS			Verify all safety restraints removed
01-30-00	40.	WW			Relay wind weighted payload impact coordinates to RD.
	41.	RD			Relay wind weighted payload impact coordinates to Recovery Aircraft/Ship crew.
	42.	LPS			Elevate launcher to nominal settings: AZ = 140 EL = 82
	43.	ROA			Establish RF Avoidance on Pad 1.
01-15-00	44.	WW			Commence 15 minute interval wind-weight chaff balloon release schedule. Track to an altitude of 6000 feet.
	45.	WW			Provide test rocket launcher settings
	46.	LPS			Request permission from TD to load test rockets in test rocket launcher.
	47.	FOTO			Take vertical pictures of NRW-4075.
	48.	ACFT			Surveillance Aircraft on station with first ship report.
	49.	FOTO			Align Pad 2 cameras.
	50.	LPS			Clear launch danger area and set roadblocks (essential personnel in BH-2 exempt).
	51.	LPS			Perform No Voltage Checks and plug firing circuits in the fire side at blockhouse 2 for test rockets.
	52.	LPS			Verify test rocket launcher danger area clear.
	53.	ALL			**BEGIN VERTICAL CHECKS**
00-10-00	54.	PGMR			Announce start of local count @ T-10 min.
(Local Count)	55.	PLC			**External power ON.** **1. TM 2. Exp**
	56.	PLC			**Experiment power ON.** **Exp #2 (AK) Exp #3 (IL) Exp #4 (GA)**
	57.	TM			Start tape.
	58.	TM			**TM report good lock.**
					System ___ **Nom** **dB/MHz** ___ **Nom** **dB/MHz**
					TM Strength - dBm ___ - dBm
					TM Deviation +/- MHz ___ +/- MHz
	59.	PLC			**Verify external nominal voltage and current levels.**
					System ___ **Type** **No.** **Nom. Voltage** **Voltage**

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
					TM A 24 28 Vdc Experiment D 12 12 Vdc **System** **Nom. Current** **Current** TM 1.6 A Experiment 2.26 A **System** **Check** Transponder
	60.	PLC			Interrogate transponder and confirm good lock.
00-05-00	61.	ROA			Announce "This is NRW-4075 SUB-SEM Orion Vertical Checks. Please stand by for station checks. All stations should announce status as 'Green' or 'Red' on Channel 1." Camera Station 5 ____GO Camera Station 15 ____GO * Test Director: R-6604 ____GO VACAPES ____GO FAA Airspace ____GO USCG NOTMAR ____GO * Computer RTCS or RTBS ____GO * Launch Pad Supervisor ____ GO * Launcher Control ____GO Programmer ____ GO * Principal Investigator ____GO * Mission Manager ____GO * Payload Telemetry ____GO * Payload Control ____GO Photographer Lift off/tracking camera's ___GO * Project Manager ____GO * Radar Controller C-Band radars ____GO * Range Safety Officer: ____ GO Launch Hazard Area ____GO Air/Surface hazard area within limits ___GO Flight Safety criteria/requirements satisfied ____ GO * Telemetry Tracking Antenna's ____GO * Sounding Rocket Office _____GO Wind Weighting ____GO
00-03-20	62.	TM Readout			Start paper recording.
00-03-00	63.	PLC			**Experiment power ON.** **Exp #1 (MN)**
	64.	PLC			**Switch to INTERNAL power.** **1. TM 2. Exp**
	65.	TM			**TM report good lock.**

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
					System — **Nom** — **dB/MHz** — **Nom** — **dB/MHz** TM Strength — - dBm — — - dBm — TM Deviation — +/- MHz — — +/- MHz —
	66.	PLC			**Verify external nominal voltage and current levels.** **System** — **Type** — **No.** — **Nom. Voltage** — **Voltage** TM — A — 24 — 28 Vdc — Experiment — D — 12 — 12 Vdc — **System** — **Nom. Current** — **Current** TM — 1.6 A — Experiment — 2.26 A — **System** — **Check** Transponder —
	67.	PLC			Interrogate transponder and confirm good lock.
	68.	PLC			**Arm CDI and verify nominal parameters.** **System** — **Nom. Voltage** — **Voltage** CDI Battery 1 — 28 Vdc — CDI Battery 2 — 28 Vdc — Capow Pack 1 — 33 Vdc — Capow Pack 2 — 33 Vdc — **System** — **Check** CDI MFT 1 — CDI MFT 2 —
	69.	PLC			**Switch to EXTERNAL power.** **1. Exp 2. TM**
	70.	PLC			**Experiment power OFF.** **Exp #2 (AK) Exp #3 (IL) Exp #4 (GA) Exp #1 (MN)**
	71.	PLC			**External power OFF.** **1. Exp 2. TM**
	72.	TM			Stop recording on all systems.
	73.	ALL			**END VERTICAL CHECKS**
00-45-00	74.	ROA			Release RF Avoidance on Pad 2.
	75.	TD			Launch FFAR 2.75 inch test rocket.

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
00-15-00	76.	WW			Provide wind weighted payload impact coordinates (degrees-min.-sec.) to RD and launcher settings to RSO. SET _____ AZ _____ EL EFFECTIVE **140** AZ **82** EL
	77.	LC			Set launcher as specified by Range Safety Officer: SET _____ AZ _____ EL EFFECTIVE **140** AZ **82** EL
00-10-00	78.	PGMR			Time Count.
	79.	RD			Verify Recovery Ship is on station.
	80.	PLC			**External power ON.** **1. TM 2. Exp**
	81.	PLC			**Experiment power ON.** **Exp #2 (AK) Exp #3 (IL) Exp #4 (GA)**
	82.	TM			Start tape.
	83.	TM			**TM report good lock.** **System** — **Nom** — **dB/MHz** — **Nom** — **dB/MHz** TM Strength — - dBm — _____ — - dBm — _____ TM Deviation — +/- MHz — _____ — +/- MHz — _____
	84.	PLC			**Verify external nominal voltage and current levels.** **System** — **Type** — **No.** — **Nom. Voltage** — **Voltage** TM — A — 24 — 28 Vdc — _____ Experiment — D — 12 — 12 Vdc — _____ **System** — **Nom. Current** — **Current** TM — 1.6 A — _____ Experiment — 2.26 A — _____ **System** — **Check** Transponder — _____
	85.	PLC			Interrogate transponder and confirm good lock.

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
00-05-00	86.	ROA			Announce "This is NRW-4075 SUB-SEM Orion launching from Pad 2, MRL launcher. Please stand by for station checks. All stations should announce status as 'Green' or 'Red' on Channel 1." Camera Station 5 ____GO Camera Station 15 ____GO * Test Director: R-6604 ____GO VACAPES ____GO FAA Airspace ____GO USCG NOTMAR ____GO * Computer RTCS or RTBS ____GO * Launch Pad Supervisor ____ GO * Launcher Control _____GO Programmer ____ GO * Principal Investigator ____GO * Mission Manager ____GO * Payload Telemetry ____GO * Payload Control ____GO Photographer Lift off/tracking camera's ___GO * Project Manager ____GO * Radar Controller C-Band radars ____GO * Range Safety Officer: ____ GO Launch Hazard Area ____GO Air/Surface hazard area within limits ___GO Flight Safety criteria/requirements satisfied ____ GO * Telemetry Tracking Antenna's ____GO * Sounding Rocket Office _____GO Wind Weighting ____GO
	87.	TD			Test Director final briefing on "Hold" procedures. Announce "All stations are responsible for reviewing the GO / NO GO criteria listed in Test Director final briefing on "Hold" procedures. Announce "All stations are responsible for reviewing the GO / NO GO criteria listed in the OSD. Only stations annotated with an asterisk are permitted to call a HOLD. All other sites should report RED.
	88.	TD			Confirm launcher settings. SET _____ AZ _____ EL EFFECTIVE

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
					140 AZ **82** EL
00-03-20	89.	TM Readout			Start paper recording.
00-03-00	90.	PGMR			Time Count
	91.	PLC			**Experiment power ON.** **Exp #1 (MN)**
	92.	PLC			**Switch to INTERNAL power.** **1. TM 2. Exp**
	93.	TM			**TM report good lock.** **System** — **Nom** — **dB/MHz** — **Nom** — **dB/MHz** TM Strength — - dBm — — - dBm — TM Deviation — +/- MHz — — +/- MHz —
	94.	PLC			**Verify external nominal voltage and current levels.** **System** — **Type** — **No.** — **Nom. Voltage** — **Voltage** TM — A — 24 — 28 Vdc — Experiment — D — 12 — 12 Vdc — **System** — **Nom. Current** — **Current** TM — 1.6 A — Experiment — 2.26 A — **System** — **Check** Transponder —
	95.	PLC			Interrogate transponder and confirm good lock.
	96.	PLC			**Arm CDI and verify nominal parameters.** **System** — **Nom. Voltage** — **Voltage** CDI Battery 1 — 28 Vdc — CDI Battery 2 — 28 Vdc — Capow Pack 1 — 33 Vdc — Capow Pack 2 — 33 Vdc — **System** — **Check** CDI MFT 1 — CDI MFT 2 —
00-01-00	97.	PGMR			Time Count
	98.	PM			**Toggle IL Recorder Switch (1 Second)**
	99.	"N"			NOTE: In case of an extended hold; toggle IL Recorder Switch (1 second), switch payload back to EXTERNAL power, turn off MN, stop paper, and recycle to T minus 00-03-20. Upon announcement; also switch off experiments and external power, stop tape, recycle to T minus 00-10-00.

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECK D	CHECK C	OPERATION
00-00-50	100.	PGMR			Time Count.
00-00-40	101.	PGMR			Time Count.
00-00-30	102.	PGMR			Time Count.
00-00-20	103.	PGMR			Time Count.
00-00-10	104.	PGMR			Time Count at one second intervals to T-0. On T+ time, count ten second intervals to 1 min.
00-00-00	105.	"N"			Orion ignites (vehicle and payload umbilicals disengage). Ignition Time is: _____-_____-_____Z HR MIN SEC NOTE: All personnel must remain clear of the Launch Danger Area until the "ALL CLEAR" announcement is made by the TD.
00-00-00.1	106.	"N"			I2KI Plunger Motor On
00-00-01.0	107.	"N"			Glenbrook SW 2 On
00-00-06.0	108.	"N"			Glenbrook SW 2 Off
00-00-13.0	109.	"N"			Glenbrook SW 1 On
00-00-18.0	110.	"N"			Glenbrook SW 1 Off
00-00-23.0	111.	"N"			50K Ft Upleg
00-00-25.4	112.	"N"			Orion Burn-out
00-00-30.1	113.	"N"			I2KI Plunger Motor Off
00-01-26.0	114.	"N"			Payload Separation
00-01-27.0	115.	"N"			Glenbrook SW 2 On
00-01-32.0	116.	"N"			Glenbrook SW 2 Off
00-01-50.0	117.	"N"			Glenbrook SW 1 On
00-01-54.4	118.	"N"			Apogee
00-01-55.0	119.	"N"			Glenbrook SW 1 Off
00-01-56.0	120.	"N"			Chute Deploy Enable
00-03-32.3	121.	"N"			50K Ft Downleg
00-04-43.2	122.	"N"			Orion Ballistic Impact
00-05-32.9	123.	"N"			Parachute Deployment
00-15-37.8	124.	"N"			Payload/Parachute Impact (km/ miles)
00-17-00	125.	"N"			Begin Recovery operations. Relay actual payload impact to Recovery Aircraft and Recovery Ship.
00-25-00	126.	"N"			Announce time and location of the Post-Mission Briefing.

"T" MINUS HH-MM-SS	ITEM #	ACT BY	CHECKD	C	OPERATION
	127.	"N"			When operations complete and RCC complete, release: Electric Shop (x1446) Air Conditioning Shop (x1511) Generator Room (x2225)